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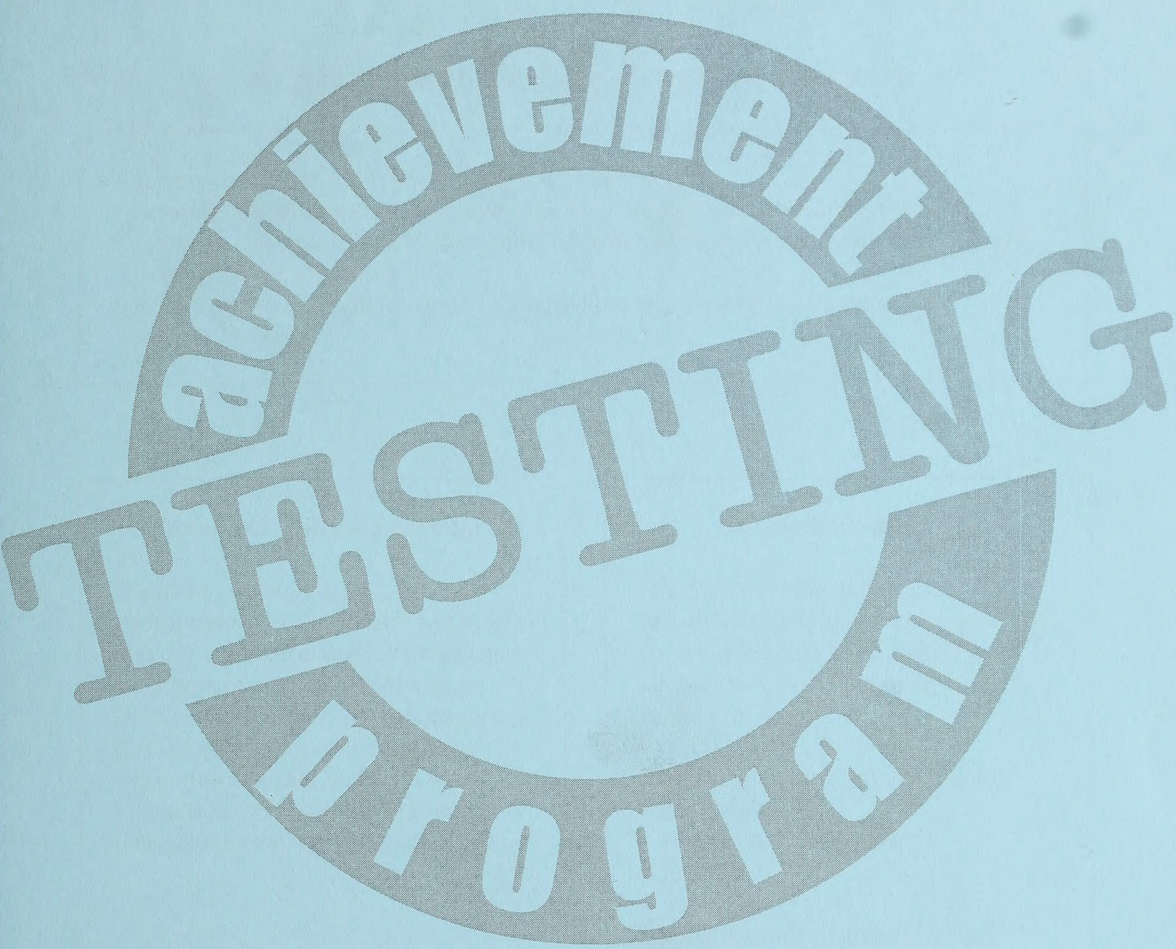

Information Bulletin

• Grade 6 Mathematics •

1999 – 2000 School Year

Alberta
LEARNING

This document was written primarily for:

Students	✓
Teachers	✓
Administrators	✓
Parents	
General Audience	
Others	✓ Superintendents

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This bulletin contains general information about the Achievement Testing Program and information specific to the Grade 6 Mathematics Achievement Test. **This bulletin replaces all previous bulletins.**

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September 1999

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Achievement Testing Program Purpose

The purpose of the Achievement Testing Program is to
- determine if students are learning what they are expected to learn
- report to Albertans how well students have achieved provincial standards at given points in their schooling
- assist schools, jurisdictions, and the province in monitoring and improving student learning

Enhance Student Learning

Careful examination and interpretation of the results can help identify areas of relative strength and weakness in student achievement. Teachers and administrators can use this information in planning and delivering relevant and effective instruction in relation to learning outcomes in the *Programs of Study*.

Enable Accountability

Alberta Learning and school jurisdiction personnel are responsible for ensuring that high-quality education is provided to all students in the province.

Information about achievement is provided to
- schools and jurisdictions
- parents
- the public

so that they may know how well students in their schools are meeting local targets and provincial expectations.

Interpreting Results

Achievement tests assess only part of what is to be learned. In addition, many factors contribute to student achievement. Personnel at the jurisdiction and school levels are in the best position to appropriately interpret, use, and communicate jurisdiction and school results in the local context.

General Information

The Achievement Testing Program provides teachers, parents, students, school administrators, Alberta Learning, and the public with information about what students know and can do in relation to provincial standards. Group results are reported at school, district, and provincial levels to improve learning opportunities for students.

The assessments are administered in two subject areas in Grade 3—language arts and mathematics—and in four subject areas in grades 6 and 9—language arts, mathematics, social studies, and science.

The assessments are based on provincial standards, which reflect important learnings in the subject areas listed above. Classroom teachers from across the province are extensively involved in developing, field testing, and marking the assessment instruments. Teachers are also involved in setting assessment standards.

Reporting the Results

On August 25, 1999, each jurisdiction and school connected via extranet received, electronically, individual school reports and jurisdiction reports regarding their students' achievement, as well as guidelines for interpreting these results in relation to provincial standards.

To facilitate reflection on school programs, we expect that results will be shared with all school staff (not just teachers of grades 3, 6, and 9), as well as with parents and the community.

Two copies of an individual profile for each student will be sent to the school that the student will attend in September. We expect that the Parent Copy will be given to parents and the School Copy will remain with the student's record.

Administering the Tests

Information about the nature of the provincial assessments as well as their administration to students requiring special provisions can be found in the *General Information Bulletin, Achievement Testing Program,* which is distributed to all school principals and is posted on the Alberta Learning web site http://ednet.edc.gov.ab.ca.

Principals should refer to the *Principal's Manual* for specific information regarding schedules, security, rules, responsibilities, policies, and the administration of all achievement tests.

Teachers can refer to the *Teacher's Manual* for specific information regarding procedures for administering all achievement tests and the local marking of the written response for Language Arts achievement tests.

Students in Francophone and French Immersion Programs

All students in Francophone and French Immersion programs must write English Language Arts, French Language Arts, and French versions of other achievement tests if their language of instruction is French. Alberta Learning will send a checklist to schools in January requesting an indication of how many English or French tests are required. These forms must be returned through jurisdiction offices by mid-February.

The following achievement tests are secured:
ALL tests from 1998 and 1999

Standards: Curriculum, Assessment, Achievement

Definitions

The Achievement Testing Program is directly concerned with three different but related standards. These provincial standards are curriculum standards, assessment standards, and achievement standards.

- **Curriculum Standards** are the expected student learnings sequenced into grade levels. They include broad statements of knowledge, skills, and attitude expectations against which student performance is judged. These standards are established in the process of curriculum development and are found in the *Programs of Study* document produced for each subject.
- **Assessment Standards** are the criteria adopted for judging actual student achievement relative to curriculum standards. They are ultimately expressed in and applied to test scores. They are derived from answers to questions such as: what scores must a student obtain or how many questions on a given test must a student answer correctly in order for his/her performance on the test to be judged as acceptable or excellent?
- **Achievement Standards** are judgements that specify what percentages of students are expected to achieve an acceptable and an excellent level of achievement in relation to each course of studies; i.e., to the relevant curriculum standards. They reflect a community judgement about what is an appropriate expectation for students. It is important to point out that this judgement is not a prediction of the percentage of students who will actually achieve acceptable or excellent levels, but rather a specification of the percentage of students at a given grade or year in school who are *expected* to achieve the acceptable (85%) or excellent level (15%). **The 85% of students expected to meet the *acceptable standard* includes those students who meet the *standard of excellence*.** These standards apply to school, jurisdiction, and provincial performance.

Local Targets and Planning

A target is an implicit part of any goal. A school's educational goals point the directions for people's efforts, but targets describe in specific terms what will be accomplished by a certain time. This allows people to assess whether they are heading where they intend to go, and how well they are moving toward their desired outcomes. Assessment of progress in relation to a target may also lead to the recognition that a different target would be more helpful in guiding a school's or jurisdiction's efforts toward a particular goal. By identifying immediate, reachable outcomes, targets encourage teachers, students, administrators, and their community to believe that distant goals are attainable.

Viewed in this way, targets can be a valuable part of a school board's education plan. The mission, mandate, values and beliefs, and long-range goals all provide a context for setting specific targets. Similarly, past accomplishments are helpful indicators of what specific targets may be most appropriate. This is why achievement test results, as well as results of various other local assessments, are relevant in target setting.

Focus

District targets for student achievement on the provincial achievement tests are a required part of a school board's education plan. These district targets provide a framework for each school in the district to use in setting local targets. However, the setting of specific targets by each school is necessary as part of a plan of action and as a basis for assessing the effectiveness of local decisions about programs. District targets will be most helpful if they reflect the variations identified by the local targets set by individual schools.

Systematic interpretation of school results from provincial achievement tests will reveal where students need more help in order to continue learning successfully. This can be the beginning point for setting local targets for student performance on the tests in the next year or two. The provincial expectation that at least 85% of students will achieve the *acceptable standard* on each test indicates the long-term goal, but staff in each school should identify what percentage of their students reasonably can be expected to achieve the provincial standard on a particular test in a given year. An important part of this decision is agreeing on how resources and people can support the priorities that have been set locally.

Tips for Setting Local Targets

- Consider past and desired participation rates in achievement tests when setting targets for student performance on specific tests.
- Focus on a limited number of areas. For example, emphasize one or two subjects in which weaknesses in student performance are across grades. It may be reasonable to set "hold the line" targets in other areas temporarily.
- Work collaboratively across grades in a school. Students' performance on an achievement test reflects their learning over the years. Teachers in all grades can contribute important insights and assistance in setting targets.
- Use the school reports on achievement test results to identify which aspects of a subject need attention, and use this information to plan targets.
- Emphasize what students need in order to succeed, rather than focusing on problems that keep students from achieving at the levels expected provincially.
- Expect to set different targets in different grades and subjects, depending on past results and current priorities and resources.
- Work collaboratively at the district level, to identify areas of common strength or weakness across different schools and to determine targets for the district that can support all schools.
- Interpret targets for students so that they are part of the school-wide effort to achieve school targets. Inform parents, too.
- Report to students and parents on student achievement in relation to targets.

Targets in Perspective

Provincial tests, though providing a common standard and important information about students' learning, are only one of many indicators that should be used to evaluate the effectiveness of schools. School boards and individual schools may find it helpful to set targets related to other measures of student achievement and to areas other than student achievement. Examples of these include completion of programs, satisfaction reported by students or parents, collaboration of parents or others from the community, student involvement in the community, and other types of indicators reflecting local educational goals.

Through its targets, each school board or school, together with parents and members of the community, can highlight priorities that exist locally for a given year and can commit to achieving certain results. Insofar as target setting complements other strategies for improving student learning, targets are likely to contribute to student learning and to the overall effectiveness of schooling in the community.

Purpose of Assessment Standards

The provincial standards are the basis upon which we assess how well students have learned English Language Arts and Mathematics by the end of Grade 3, and English Language Arts, Mathematics, Science, and Social Studies by the end of

Grade 6 and Grade 9. These standards reflect the essential learnings that all Alberta students are expected to achieve. Provincial standards are useful, therefore, for assessing grades 3, 6, and 9 students in all types of school programs—public, private, and home education. By comparing actual results with provincial standards, decisions can be made about whether achievement is, in fact, “good enough.”

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Grade 6 Mathematics Assessment

General Description

The 1999 Grade 6 Mathematics Achievement Assessment consists of two parts.

Part A: Operations and Number Sense consists of multiple-choice questions designed to assess the knowledge students have of number (see the *Alberta Program of Studies for K–9 Mathematics, June 1996*). There are 30 multiple-choice questions on this test grouped into 4 categories: seven addition/subtraction questions, seven multiplication/division questions, eight connecting experiences questions, and eight number relationship questions. The questions are randomly placed within the test. Each category is worth 1 mark for a maximum score of 4. In order to receive one mark for each category, a student must correctly answer at least five questions in that category.

The test is developed to be completed in 30 minutes; however, students may take an additional 10 minutes to complete the test. Students are **not** allowed to use manipulatives or calculators when answering the questions.

The blueprint for Part A is on page 3. A sample test (see page 8) has been provided so that teachers can help prepare students for the test.

Part B consists of 50 multiple-choice questions integrated in narrative themes. This test is developed to be completed in 60 minutes; however, students may take an additional 30 minutes to complete the test.

Students record their answers on a separate machine-scorable answer sheet.

Students require HB pencils, rulers, and erasers. They may also need scrap paper.

Students may use manipulative materials and calculators when completing Part B of the assessment.

The blueprint for Part B is on page 3 and is followed by sample questions (see page 17) that teachers can use with students to help them prepare for the test.

Reporting Categories

The following indicators briefly highlight the learnings for each reporting category.

Knowledge
- recalls facts, concepts, terminology
- knows number facts
- recognizes place value
- knows the procedure for algorithms and computations
- knows the procedure for constructions and measurements
- knows how to use calculators/computers
- knows mental computation, estimation strategies
- shows basic mathematical concepts in concrete, pictorial, and/or symbolic modes

Skills
- applies a mathematical concept in a variety of familiar situations
- creates new problem situations that exemplify a concept
- judges reasonableness of answers
- justifies answers
- communicates why and when certain strategies are appropriate
- demonstrates relationships among numbers, operations, number forms, and modes of representation
- demonstrates relationships among geometric forms
- applies mathematical knowledge to solve problems
- uses a variety of problem-solving strategies
- applies mathematical concepts in new situations

Description of the Mathematics Assessment Standards

The following statements describe what is expected of Grade 6 students who are meeting the *acceptable standard* or the *standard of excellence* based on outcomes in the Program of Study. These statements represent the standards against which student achievement is measured. It is important to remember that one test alone cannot measure completely all of the outcomes in the Program of Study.

Acceptable Standard	*Standard of Excellence*
Students who meet the *acceptable standard* in Grade 6 Mathematics have a basic understanding of mathematical concepts and related procedural knowledge. They demonstrate their understanding in concrete, pictorial, and symbolic modes and are able to translate from one mode to another. For example, students meeting the *acceptable standard* know that the solution to the number sentence 42 × 2 = ☐ is 84, and they can demonstrate their understanding in concrete and pictorial ways. They are able to write related number sentences and verify them using manipulatives and diagrams.	Students who meet the *standard of excellence* in Grade 6 Mathematics have a thorough understanding of mathematical concepts and related procedural knowledge. They consistently demonstrate their understanding in concrete, pictorial, and symbolic modes, and easily translate from one mode to another. They are able to create problem situations to illustrate concepts and to analyze and explain relationships among concepts. For example, students meeting the *standard of excellence* can write all number sentences related to 42 × 2 = ☐, justify them using manipulatives and diagrams, and create problem situations to exemplify the relationship.
To meet the *acceptable standard*, students reflect upon, explain, and defend their ideas, using objects, diagrams, everyday and mathematical terminology, and, when appropriate, technology. They understand mathematical questions presented with objects, diagrams, or symbols in everyday and school settings. Students meeting the *acceptable standard* derive meaning from problem-solving experiences in their world and build on a foundation of previous learning.	To meet the *standard of excellence,* students assess, explain, and defend their ideas clearly, using objects, diagrams, and exact mathematical terminology. They understand mathematical questions presented with objects, diagrams, or symbols in both common and unusual settings. Students meeting the *standard of excellence* derive meaning from problem-solving experiences in familiar and unusual settings and build on a foundation of previous learning.
Students meeting the *acceptable standard* perform the mathematical operations and procedures that are fundamental to mathematics in Grade 6 and apply what they know to solving routine problems in familiar settings. They can describe the steps they used to solve a particular problem and can defend their solution to the problem.	Students meeting the *standard of excellence* perform the mathematical operations and procedures that are fundamental to mathematics in Grade 6 and apply what they know to solving and creating novel problems. They can clearly describe the steps that they or other students used to solve a particular problem and can justify the solution as well as suggest alternative solutions and/or strategies.
Students meeting the *acceptable standard* have a positive attitude about mathematics and a sense of personal competence in using mathematics in their daily lives. They demonstrate confidence when using common mathematical procedures and when applying problem-solving strategies in familiar settings.	Students meeting the *standard of excellence* have a positive attitude toward mathematics and show confidence in performing mathematical tasks. They are self-motivated risk-takers who persevere when solving novel problems. They take initiative in trying new methods and are creative in their approach to problem solving.

Blueprint

The blueprint for mathematics Part A and Part B outlines the content strands and reporting categories under which questions on the test are classified. The number of marks in each category is approximate.

A

Mathematical Processes*	**Knowledge**	**Skills**	**Total Number of Marks**
Operations and Number Sense	**4**	**N/A**	**4 (7.4%)**

B

General Outcomes*	**Knowledge**	**Skills**	**Total Number of Marks**
Number • Develop a number sense for decimals and common fractions, explore integers, and show number sense for whole numbers • Apply arithmetic operations on whole numbers and decimals in solving problems	**6**	**11**	**17 (31.5%)**
Patterns and Relations • Use relationships to summarize, generalize, and extend patterns, including those found in music and art • Use informal and concrete representations of equality and operations on equality to solve problems	**4**	**9**	**13 (24.1%)**
Shape and Space • Solve problems involving perimeter, area, surface area, volume, and angle measurement • Use visualization and symmetry to solve problems involving classification and sketching • Create patterns and designs that incorporate symmetry, tessellations, translations, and reflections	**4**	**8**	**12 (22.2%)**
Statistics and Probability • Develop and implement a plan for the collection, display, and analysis of data gathered from appropriate samples • Use numbers to communicate the probability of single events from experiments and models	**3**	**5**	**8 (14.8%)**
Total Number of Marks on Part A and Part B	**21 (38.9%)**	**33 (61.1%)**	**54 (100.0%)**

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*From the *Alberta Program of Studies for K–9 Mathematics,* June 1996

Preparing Students for the Mathematics Test

The best way to prepare students for writing the achievement tests is to teach the curriculum well and to ensure that children know what is expected. Many of the skills and attitudes that support test writing are in fact good skills and strategies for approaching all kinds of learning tasks.

Have students do the sample questions included in this bulletin. Then, have students share the strategies they used to answer the questions.

Teachers are also encouraged to share the following information with their students to help them prepare for the Grade 6 Mathematics Achievement Test.

Suggestions for Answering Multiple-Choice Questions

- Before you begin, find out:
  - how much time you have
  - if you can use a calculator, tables, diagrams, manipulatives, etc.
- Ask questions if you are unsure of anything.
- Skim through the whole test before beginning. Find out how many questions there are and plan your time accordingly.
- Answer the easier questions first, then go back to the harder ones.
- Do not spend too much time on any one question. Make a note (*or ?) beside the question and go back to it if you have time.
- Read each question carefully, underline key words, and try to think of an answer before looking at the choices.
- Read all the choices and see which one best fits the answer.
- When you are not sure which answer is correct, cross out any choices that are wrong, then pick the choice that is best.
- Guess if you don't know the right answer. Answer all questions—there is no penalty for guessing.
- If time permits, recheck your answers.
- Double check to make sure you have answered everything before handing in the test.
- Notice that the questions on the mathematics test are organized in narrative themes.
- Read the information given using the strategy that works best for you. You should either
  - look at all the information and think carefully about it before you try to answer the questions **OR**
  - read the questions first and then look at the information, keeping in mind the questions you need to answer.
- Make sure you look at all forms of the information given. Information may be given in words, charts, pictures, graphs, and maps.
- When information is given for more than one question, go back to the information before answering each question.
- Check your work when you calculate an answer, even when your answer is one of the choices.

For further suggestions, see *Teaching Students with Learning Disabilities*, Alberta Learning, Special Education Branch, pages LD 122 to 124.

Sample Test

The following sample questions reflect the nature and complexity of the questions that will appear on the Mathematics 6 Achievement Test.

Teachers are encouraged to familiarize their students with the kinds of questions that will appear on the achievement test by having them work through the sample questions. A sample answer sheet is provided on page 7.

This collection of sample questions does not represent the test emphasis as presented in the blueprint.

The key and mathematical processes for the sample questions for Part A are on page 16. The key and descriptors for the sample questions for Part B are on page 30.

The sample questions on pages 8 to 15 appeared on field tests, and the sample questions on pages 17 to 29 appeared on the June 1999 achievement test (all other questions on this test are secured). These released questions, along with questions from previous bulletins, can be used to prepare students for the current achievement test.

The 2000 Grade 6 Mathematics Achievement Test for English, Francophone, and French Immersion students will be based on the June 1996 *Alberta Program of Studies*.

Sample Instructions: Part A

- You are **not** allowed to use manipulatives or calculators when answering the questions.

- Make sure that the number of the question on your answer sheet matches the number of the question you are answering.

- Read each question carefully and choose the **correct** or **best** answer.

Example

How many sides does a triangle have?

A. 2
B. 3
C. 4
D. 5

Answer Sheet

Ⓐ●ⒸⒹ

- Use **only** an **HB** pencil to mark your answer.

- If you change your answer, **erase** your first mark **completely**.

- Try to answer all the questions.

- **You may write in this booklet, if you find it helpful. Make sure answers are placed on the answer sheet.**

Sample Instructions: Part B

- You may use manipulatives, basic math tools including calculators, when answering the questions, but they are not necessary.

- Make sure that the number of the question on your answer sheet matches the number of the question you are answering.

- Read each question carefully and choose the **correct** or **best** answer.

Example

How many sides does a triangle have?

A. 2
B. 3
C. 4
D. 5

Answer Sheet

Ⓐ●ⒸⒹ

- Use **only** an **HB** pencil to mark your answer.

- If you change your answer, **erase** your first mark **completely**.

- Try to answer every question.

- **You may write in this booklet, if you find it helpful. Make sure answers are placed on the answer sheet.**

Note: Calculators and manipulatives can only be used on Part B of the Grade 6 Mathematics Achievement Test.

Sample Answer Sheet

MULTIPLE CHOICE			
1	Ⓐ Ⓑ Ⓒ Ⓓ	16	Ⓐ Ⓑ Ⓒ Ⓓ
2	Ⓐ Ⓑ Ⓒ Ⓓ	17	Ⓐ Ⓑ Ⓒ Ⓓ
3	Ⓐ Ⓑ Ⓒ Ⓓ	18	Ⓐ Ⓑ Ⓒ Ⓓ
4	Ⓐ Ⓑ Ⓒ Ⓓ	19	Ⓐ Ⓑ Ⓒ Ⓓ
5	Ⓐ Ⓑ Ⓒ Ⓓ	20	Ⓐ Ⓑ Ⓒ Ⓓ
6	Ⓐ Ⓑ Ⓒ Ⓓ	21	Ⓐ Ⓑ Ⓒ Ⓓ
7	Ⓐ Ⓑ Ⓒ Ⓓ	22	Ⓐ Ⓑ Ⓒ Ⓓ
8	Ⓐ Ⓑ Ⓒ Ⓓ	23	Ⓐ Ⓑ Ⓒ Ⓓ
9	Ⓐ Ⓑ Ⓒ Ⓓ	24	Ⓐ Ⓑ Ⓒ Ⓓ
10	Ⓐ Ⓑ Ⓒ Ⓓ	25	Ⓐ Ⓑ Ⓒ Ⓓ
11	Ⓐ Ⓑ Ⓒ Ⓓ	26	Ⓐ Ⓑ Ⓒ Ⓓ
12	Ⓐ Ⓑ Ⓒ Ⓓ	27	Ⓐ Ⓑ Ⓒ Ⓓ
13	Ⓐ Ⓑ Ⓒ Ⓓ	28	Ⓐ Ⓑ Ⓒ Ⓓ
14	Ⓐ Ⓑ Ⓒ Ⓓ	29	Ⓐ Ⓑ Ⓒ Ⓓ
15	Ⓐ Ⓑ Ⓒ Ⓓ	30	Ⓐ Ⓑ Ⓒ Ⓓ

Sample Questions: Part A

1. What is the sum of 87.5 and 12.5?

- **A.** 1 093.75
- **B.** 100.0
- **C.** 75.0
- **D.** 7.0

2. What is 2.5 × 100?

- **A.** 2.50
- **B.** 25.0
- **C.** 250
- **D.** 2 500

3. A fraction that is equivalent to $\frac{9}{10}$ is

- **A.** $\frac{90}{110}$
- **B.** $\frac{81}{90}$
- **C.** $\frac{56}{60}$
- **D.** $\frac{16}{20}$

4. The difference between 4 300 and 2 088 is

- **A.** 2 212
- **B.** 2 322
- **C.** 2 388
- **D.** 6 388

5. A percentage that is equivalent to $\frac{7}{20}$ is

A. 70.0%
B. 35.0%
C. 28.0%
D. 14.0%

6. You have 180 cookies. This is equivalent to

A. 15 dozen
B. 18 dozen
C. 20 dozen
D. 30 dozen

7. What is $483.2 \div 8$?

A. 604
B. 406
C. 60.4
D. 40.6

8. What is \$1 000.00 – \$178.50?

A. \$821.50
B. \$922.50
C. \$932.50
D. \$1 178.50

9. What is 63 736 – 2 947?

- **A.** 34 266
- **B.** 59 211
- **C.** 60 789
- **D.** 66 683

10. A fraction that is equivalent to 75% is

- **A.** $\frac{17}{20}$
- **B.** $\frac{7}{10}$
- **C.** $\frac{4}{5}$
- **D.** $\frac{3}{4}$

11. You are paid $4.00/h to babysit. You work for 9.5 hours. How much do you earn?

- **A.** $40.50
- **B.** $38.00
- **C.** $36.00
- **D.** $13.50

12. When a number is divided by 7, the quotient is 8 remainder 6. What is the number?

- **A.** 42
- **B.** 50
- **C.** 56
- **D.** 62

13. The difference between \$640.00 and \$346.84 is

- **A.** \$293.16
- **B.** \$304.26
- **C.** \$306.84
- **D.** \$986.84

14. What is 38.7 – 29.007?

- **A.** 9.693
- **B.** 9.707
- **C.** 10.307
- **D.** 11.703

15. The total number of minutes in $3\frac{1}{2}$ hours is

- **A.** 210 min
- **B.** 230 min
- **C.** 330 min
- **D.** 350 min

16. The number of nickels in \$3.50 is

- **A.** 14 nickels
- **B.** 35 nickels
- **C.** 70 nickels
- **D.** 350 nickels

17. What is 7 263 ÷ 9?

- **A.** 78
- **B.** 87
- **C.** 807
- **D.** 870

18. If one item costs $1.20, what is the cost of 5 items?

- **A.** $3.80
- **B.** $5.00
- **C.** $6.00
- **D.** $6.20

19. What is 730 × 25?

- **A.** 511
- **B.** 1 825
- **C.** 5 110
- **D.** 18 250

20. How many metres are in 275 cm?

- **A.** 27 500 m
- **B.** 2 750 m
- **C.** 27.5 m
- **D.** 2.75 m

21. What is 3.74 + 2.9 + 48.6 + 0.28?

A. 9.17
B. 11.78
C. 43.42
D. 55.52

22. What is 98.875 rounded to the nearest hundredth?

A. 100
B. 99
C. 98.9
D. 98.88

23. A grandmother gives $96 to be shared by her 8 grandchildren. How much does each grandchild receive?

A. $12
B. $88
C. $104
D. $768

24. The sum of four numbers is 90. The first three numbers are 27, 38, and 15. What is the fourth number?

A. 10
B. 30
C. 80
D. 170

25. A pair of equivalent fractions are

A. $\frac{7}{8}$ and $\frac{64}{72}$

B. $\frac{1}{4}$ and $\frac{8}{32}$

C. $\frac{3}{7}$ and $\frac{24}{63}$

D. $\frac{3}{5}$ and $\frac{21}{40}$

26. What is 25 000 000 + 790 021?

A. 24 209 979
B. 25 790 021
C. 54 002 100
D. 104 002 100

27. The sum of two numbers is 13, and their product is 36. What are the two numbers?

A. 8 and 5
B. 7 and 6
C. 4 and 9
D. 3 and 10

28. You buy one item for $5.24, one for $12.56, and one for $28.95. What is your change from $50.00?

A. $96.75
B. $46.75
C. $4.25
D. $3.25

29. What is the product of 56 and 22?

- **A.** 78
- **B.** 112
- **C.** 224
- **D.** 1 232

30. What is 8.5 rounded to the nearest whole number?

- **A.** 9
- **B.** 8
- **C.** 7
- **D.** 5

Key and Mathematical Processes for Sample Questions: Part A

Question	Key	Mathematical Process
1	B	addition/subtraction
2	C	multiplication/division
3	B	number relationships
4	A	addition/subtraction
5	B	number relationships
6	A	connecting experiences
7	C	multiplication/division
8	A	connecting experiences
9	C	addition/subtraction
10	D	number relationships
11	B	connecting experiences
12	D	multiplication/division
13	A	connecting experiences
14	A	addition/subtraction
15	A	number relationships
16	C	connecting experiences
17	C	multiplication/division
18	C	connecting experiences
19	D	multiplication/division
20	D	number relationships
21	D	addition/subtraction
22	D	number relationships
23	A	connecting experiences
24	A	addition/subtraction
25	B	number relationships
26	B	addition/subtraction
27	C	multiplication/division (addition/subtraction)
28	D	connecting experiences
29	D	multiplication/division
30	A	number relationships

Archeological Dig

A number of people volunteer to work at an archeological dig during their vacation.

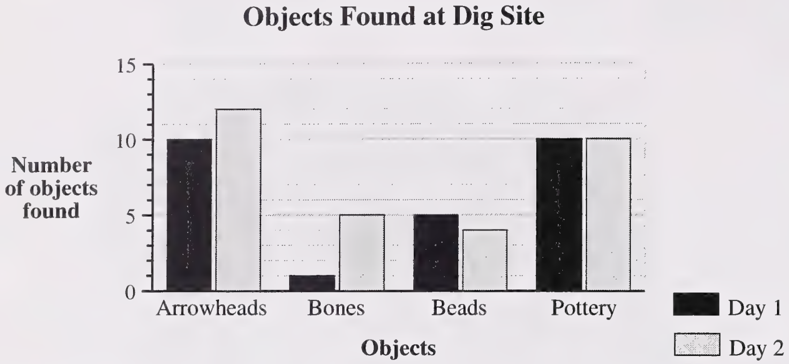
The next seven questions are about activities at the dig site.

1. There are 28 volunteers on the dig team. If each volunteer moves 3 L of soil each hour, how much soil can the team move in 4 h?

A. 120 L
B. 336 L
C. 350 L
D. 844 L

Use the following information to answer question 2.

One person graphed the number of objects found at the dig site on two different days.



2. The total number of objects that the team found on the first day was

A. 10
B. 26
C. 31
D. 57

3. Jenny found a bone with a mass of 1.4 kg. How many grams is this?

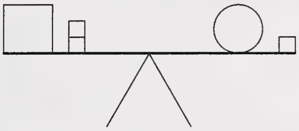
A. 14 g
B. 140 g
C. 1 400 g
D. 14 000 g

Use the following information to answer question 4.

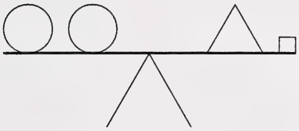
The team members compare items found at the dig site in many ways.

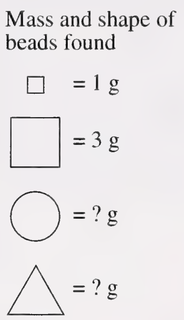
Matt found beads of different shapes and mass. He compared the mass of the beads by using a balance scale, as shown below.

First Comparison



Second Comparison



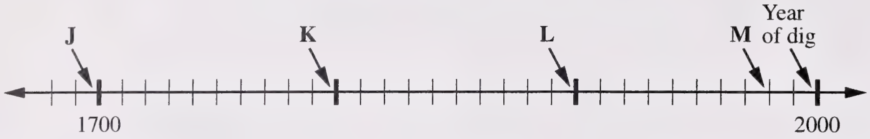


4. What is the mass of the triangular bead?

A. 3 g
B. 4 g
C. 7 g
D. 8 g

Use the following time-line to answer question 5.

In a pottery jar, a team member found a note. He recorded the year that the note was written on a time-line that he had constructed.



5. If the note was written about 2 centuries ago, what letter on the time-line represents the approximate year that the note was written?

A. J

B. K

C. L

D. M

Use the following information to answer questions 6 and 7.

One day, the archeologist bought ice-cream treats for the dig team. Their order was as follows:

Ice-Cream Treats	Quantity Bought
Jumbo Snow	4
Frozen Juice	10
Nice Ice Cream	4
I Scream	6
Waffle Cone	4

Price List

Jumbo Snow	$2.01
Frozen Juice	$0.98
Nice Ice Cream	$1.12
I Scream	$1.20
Waffle Cone	$2.49

6. What is the difference in cost between the most expensive treat on the price list and the least expensive treat?

A. $1.03

B. $1.29

C. $1.48

D. $1.51

7. What is the total cost of the order?

A. $39.48

B. $39.00

C. $7.80

D. $7.08

As part of a Canadian travel program, an Alberta Travel Club is hosting a group from Ontario.

—courtesy of *Economic Development Edmonton*

The next 13 questions are about the group's trip to Alberta and some of their activities.

Use the following information to answer question 8.

Plane Ticket Prices from Toronto to Edmonton

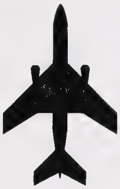
	Price per person
Adults	$1 675.00
Children	$920.00

8. The total cost of the plane tickets for the group from Ontario is $30 550.00. If there are 15 children, how many adults are in the group?

A. 10
B. 15
C. 25
D. *30*

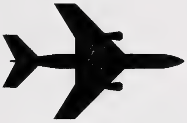
Use the following information to answer question 9.

After the group boards, the plane taxies toward the runway and makes a turn.

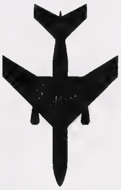


9. What does the plane look like after a 90° counterclockwise turn?

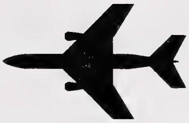
A.



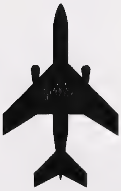
B.



C.



D.



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10. All of the 60 hosts from Alberta and 15 of the group from Ontario visit the Provincial Museum. The ticket purchased by the first person in the group is number 149. People with ticket numbers that are multiples of 4 are given a coupon for a free pop. How many people receive a coupon for a free pop?

A. 15
B. 18
C. 60
D. 64

11. The group attends a carnival at which 25% of the people are given balloons. What fraction of the people are given balloons?

A. $\frac{1}{25}$

B. $\frac{25}{10}$

C. $\frac{1}{4}$

D. $\frac{25}{4}$

Use the following information to answer question 12.

At a souvenir booth, a variety of items are sold.

Ball cap	$ 7.98
T-shirt	$16.82
Pin	$ 1.25
Balloon	$ 0.50
Banner	$ 8.76

12. If Alison buys 3 items that cost a total of $26.05, what items does she buy?

A. Three ball caps
B. Two ball caps and one T-shirt
C. One ball cap, one T-shirt, and one pin
D. Three banners

---

13. At a dart-throw game, Darcy takes four throws. Each of his scores is a multiple of 3. Which of the following scores are Darcy's?

A. 3, 21, 26, 30
B. 9, 13, 19, 27
C. 12, 24, 15, 33
D. 18, 22, 36, 16

14. Sam sees a large jar full of jelly beans in a booth at the carnival. She guesses that the jar contains four thousand seven hundred ninety-six jelly beans. What digit is in the tens place of this number?

A. 4
B. 6
C. 7
D. 9

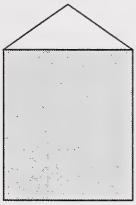
Use the following information to answer question 15.

In order to win a Ring Toss game, a person has to get three rings over one of these objects:

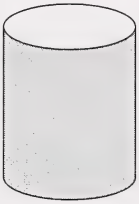
triangular prism
hexagonal prism
triangular pyramid
cylinder
octagonal prism

15. Which of the following objects is **not** listed above?

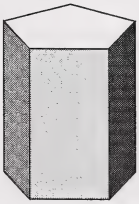
A.



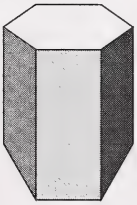
B.



C.



D.



Use the following information to answer question 16.

Carrie plays a game called "Number Find." The object of the game is to determine the missing number in a set of numbers. Carrie is given the following set of numbers.

4	16		256	1 024

16. What is the missing number?

A. 20
B. 64
C. 240
D. 256

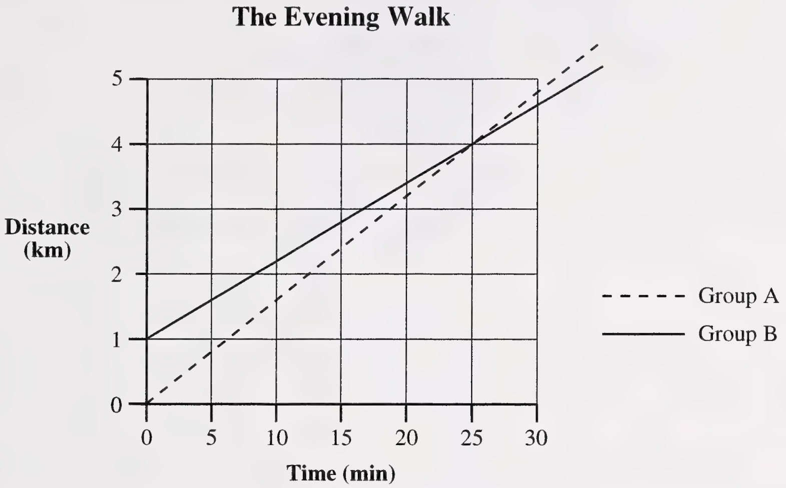
---

17. The roller coaster can hold 16 people at one time. What is the greatest number of people that can ride the roller coaster in $1\frac{1}{2}$ h if each ride takes a total of 3 min?

A. 30 people
B. 90 people
C. 270 people
D. 480 people

Use the following information to answer question 18.

One evening, two groups of people walk on a path in the river valley. When Group A starts, Group B is 1 km ahead. The following graph shows the distance and time travelled by the groups after Group A starts walking.



18. How many minutes does it take Group A to catch up to Group B?

A. 20 min

B. 23 min

C. 25 min

D. 30 min

Use the following information to answer question 19.

During the last evening of the trip, 10 people are flipping coins. Each person flips one coin 10 times.

19. What is the **most probable** number of times that the coin will land "heads up"?

A. 10 times

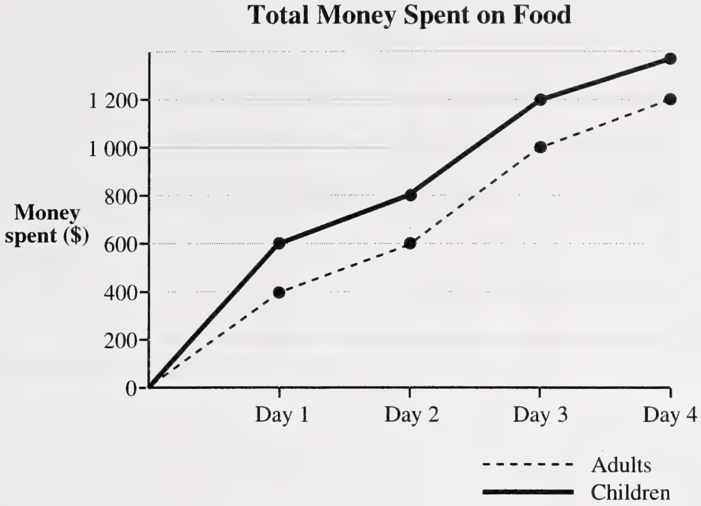
B. 30 times

C. 50 times

D. 70 times

Use the following information to answer question 20.

Melissa makes a graph showing the total amount of money spent on food for four days by the group from Ontario.



20. What is the difference in the amount of money spent on day 1 by the adults and the amount of money spent on day 1 by the children?

A. $1 000

B. $600

C. $400

D. $200

Key and Descriptors for Sample Questions: Part B

Item	Key	Reporting Category*	Program Strand**	Curriculum Standard
1	B	S	N	Solve a multi-step problem
2	B	S	SP	Interpret a double bar graph
3	C	S	SS	Convert kilograms to grams
4	C	S	PR	Interpret pictorial representation of equality
5	B	K	SP	Locate a point on a horizontal number line
6	D	K	N	Calculate difference
7	A	S	N	Determine appropriate operations and compute
8	A	S	N	Determine and use operations to solve a multi-step problem
9	C	K	SS	Visualize an image after a turn
10	B	S	PR	Solve a complex problem by applying a pattern of multiples
11	C	K	N	Express percent as an equivalent fraction
12	C	S	PR	Determine and extend a pattern
13	C	K	N	Identify multiples
14	D	K	N	Recognize place value
15	C	S	SS	Classify a 3-D object
16	B	K	PR	Identify missing number in a pattern
17	D	S	PR	Solve a novel problem by determining a pattern
18	C	S	SP	Interpret data on a line graph
19	C	S	SP	Determine probability
20	D	S	SP	Interpret a line graph

* K—Knowledge; S—Skills

** N—Number; PR—Patterns and Relations; SS—Shape and Space; SP—Statistics and Probability

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